Amendments to the Claims:

This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 (Currently Amended): A fuel cell, comprising:

a membrane electrode assembly, and

a bipolar plate having first and second opposing sides disposed outside the membrane electrode assembly, wherein:

the bipolar plate is porous, and comprises:

a first gas passage formed on a surface on ~~one~~ the first side of the bipolar plate facing the membrane electrode assembly,

a second gas passage formed on another surface on the ~~opposite side of the membrane electrode assembly~~ second side of the bipolar plate,

a communicating passage which allows the first gas passage and second gas passage to communicate with each other,

a gas inlet for introducing gas connected to one of the first gas passage and second gas passage, and

a gas outlet for discharging gas connected to the other of the first gas passage and second gas passage.

2 (Previously Presented): The fuel cell as defined in Claim 1, wherein:

the gas inlet is connected to the first gas passage,

the gas outlet is connected to the second gas passage, and

gas introduced from the gas inlet flows through the first gas passage, communicating passage and second gas passage in that order, and is discharged from the gas outlet.

3 (Currently Amended): The fuel cell as defined in Claim 2, wherein:

the second gas passage is formed on the ~~opposite~~ second side of the ~~first gas passage~~ bipolar plate so that the second gas passage is back-to-back with the first gas passage, and the gas outlet is formed on the opposite side of the gas inlet so that the gas outlet ~~manifold~~ is underneath the gas inlet ~~manifold~~.

4 (Previously Presented): The fuel cell as defined in Claim 2, wherein the first gas passage comprises:

an upstream gas passage whereof one end is connected to the gas inlet and the other end is closed, and

a downstream gas passage whereof one end is closed and the other end is connected to the communicating passage.

5 (Previously Presented): The fuel cell as defined in Claim 2, wherein:

the pressure of the gas flowing through the first gas passage is higher than the pressure of the gas flowing through the second gas passage.

6 (Previously Presented): The fuel cell as defined in Claim 5, wherein:

a differential pressure between the first gas passage and the second gas passage, is produced by a pressure loss in the communicating passage.

7 (Previously Presented): The fuel cell as defined in Claim 6, further comprising:

a differential pressure regulating mechanism which regulates the differential pressure by regulating the pressure loss in the communicating passage.

8 (Previously Presented): The fuel cell as defined in Claim 7, wherein:

the differential pressure regulating mechanism regulates the pressure loss according to the load of the fuel cell.

9 (Previously Presented): The fuel cell as defined in Claim 2, wherein:

the communicating passage is a through-hole passing through the bipolar plate.

10 (Previously Presented): The fuel cell as defined in Claim 9, wherein:

the through-hole has a smaller cross-sectional area than the cross-sectional area of the first gas passage.

11 (Previously Presented): The fuel cell as defined in Claim 2, wherein:

the communicating passage is an external manifold provided outside the bipolar plate which allows the first gas passage and second gas passage to communicate.

12 (Previously Presented): The fuel cell as defined in Claim 2, comprising:

a cooling mechanism which cools the bipolar plate, wherein:

the cooling mechanism cools the bipolar plate so that the temperature of the gas flowing through the second gas passage is lower than the temperature of the gas flowing through the first gas passage.

13 (Currently Amended): The fuel cell as defined in Claim 12, wherein:

the cooling mechanism cools the bipolar plate from the second side ~~of the second gas passage~~.

14 (Currently Amended): The fuel cell as defined in Claim 2, comprising a cooling mechanism which cools the bipolar plate wherein:

the cooling mechanism cools the bipolar plate so that the temperature of the gas flowing through the first gas passage is lower~~, the nearer~~ as the gas inlet is nearer.

15 (Currently Amended): The fuel cell as defined in Claim 14, comprising:

a controller which functions to:

regulate the cooling performance of the cooling mechanism so that the temperature of the gas discharged from the gas outlet is higher~~, the larger~~ as the gas pressure or gas usage rate of the fuel cell is larger.

16 (Currently Amended): The fuel cell as defined in Claim 15, wherein:

the controller regulates the cooling performance of the cooling mechanism so that the temperature gradient of the gas flowing through the first gas passage increases~~, the higher~~ as the temperature or humidity of the gas at the gas inlet is higher.

17 (Currently Amended): The fuel cell as defined in Claim 16, wherein:

the controller further functions to regulate the cooling performance of the cooling mechanism so that the temperature gradient of the gas flowing through the first gas passage increases~~, the larger~~ as the gas usage rate of the fuel cell is larger.

18 (Currently Amended): A fuel cell, comprising:

a membrane electrode assembly,

a bipolar plate disposed outside the membrane electrode assembly and

a cooling mechanism which cools the bipolar plate, wherein:

the bipolar plate is solid, and comprises:

a gas inlet for introducing gas,

a gas outlet for discharging gas,

a gas diffusion layer provided between the membrane electrode assembly and the bipolar plate,

~~a first gas passage~~ first gas passages formed on a surface on the side of the membrane electrode assembly, ~~whereof~~ wherein one end of each first gas passage is connected to the gas inlet and the other end of each first gas passage is connected to a return part, and

~~a second gas passage~~ second gas passages formed parallel and adjacent to the first gas ~~passage~~ passages on the surface on the side of the membrane electrode assembly, ~~whereof~~ wherein one end of each second gas passage is connected to the first gas ~~passage~~ passages via the return part and the other end of each second gas passage is connected to the gas outlet, and

the cooling mechanism cools the bipolar plate so that the temperature of the gas flowing through the first gas ~~passage~~ passages is lower~~, the nearer~~ as the gas inlet is nearer.

19 (Currently Amended): The fuel cell as defined in Claim 18, comprising:

a controller which functions to:

regulate the cooling performance of the cooling mechanism so that the temperature of the gas discharged from the gas outlet is higher~~, the higher~~ as the gas pressure or gas usage rate of the fuel cell is higher.

20 (Currently Amended): The fuel cell as defined in Claim 19, wherein the controller further functions to:

regulate the cooling performance of the cooling mechanism so that the temperature gradient of the gas flowing through the first gas ~~passage~~ passages increases~~, the higher~~ as the temperature or humidity of the gas at the gas inlet is higher.

21 (Currently Amended): The fuel cell as defined in Claim 20, wherein the controller further functions to:

regulate the cooling performance of the cooling mechanism so that the temperature gradient of the gas flowing through the first gas ~~passage~~ passages increases~~, the higher~~ as the gas usage rate of the fuel cell is higher.